

1/29

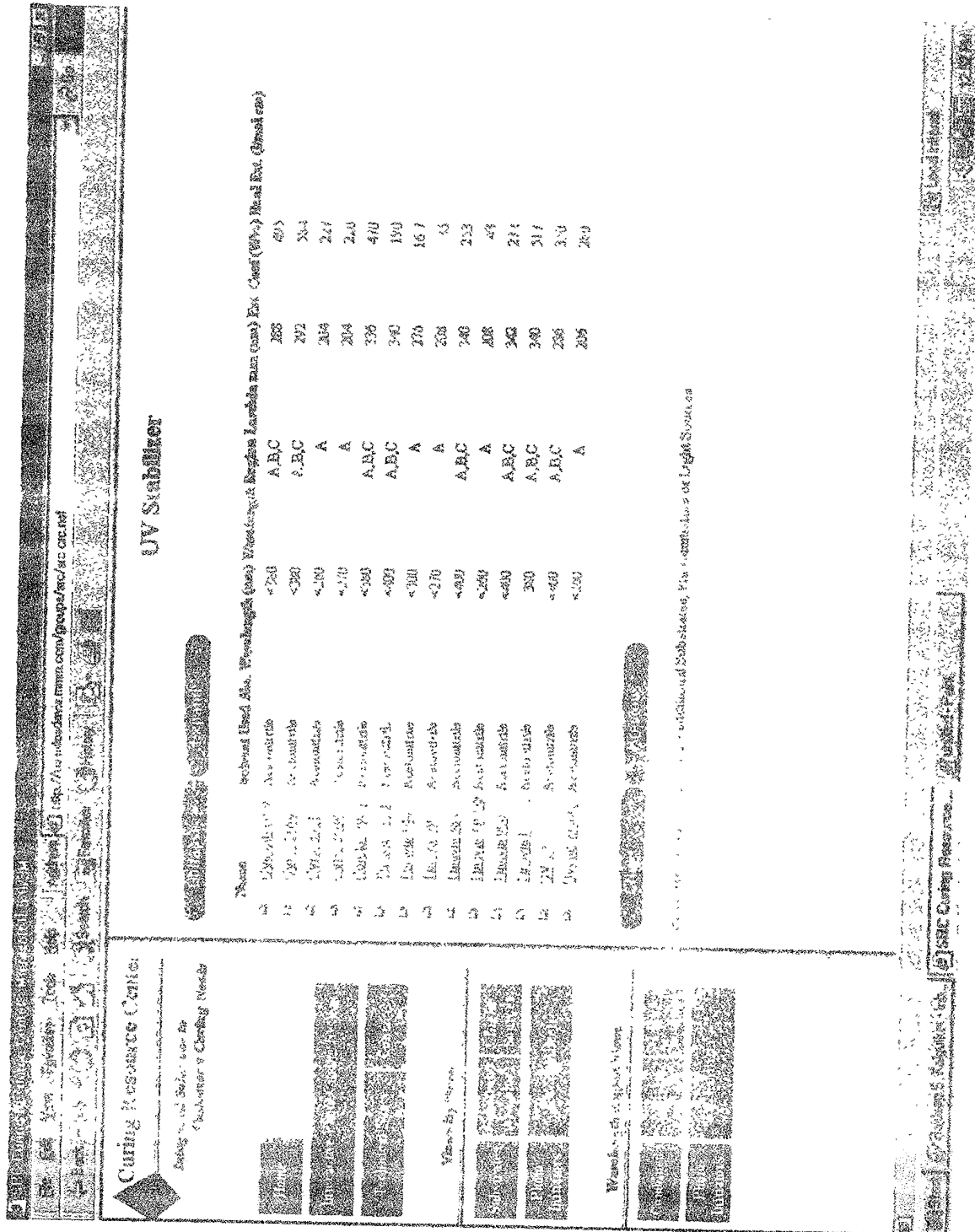
Light Source	Entire Wave	Wavelength Region
1 3M Deluxe Transparency Maker Light Source	400 - 1200	E,F,G,H,I,J,K
2 508nm LED arrays	500 - 600	F,G
3 569nm LED arrays	550 - 600	G
4 590nm LED arrays	550 - 650	G,H
5 602nm LED arrays	570 - 700	H
6 615nm LED arrays	600 - 650	H
7 637nm LED arrays	600 - 700	H,I
8 644nm LED arrays	600 - 700	H,I
9 Bluepoint	300 - 600,840 - 1150	C,D,E,F,G
10 Dental DM-ESPE Elipar T Light	400-500	D,E
11 Dental 3M-ESPE FreeLight LED	430-515	E
12 Dental 3M LED Prototype	450-520	D,E,F
13 Dental Wkeda LUX O-MAX LED	420 - 550	D,E,F
14 Dental Apollo SCE LED	440 - 520	E
15 Dental Apollo E LED	420 - 550	E,F
16 Dental Blue Light	400 - 500	D,E
17 Dental LaserMed Accucure 3000 Laser	460 - 510	E
18 Dental Nova LED, Inc	450 - 550	E,F
19 Dental Yellow Light	370 - 800,950 - 1100	E,F,G,H,I,J,K
20 Flood Lamp	350 - 1200	D,E,F,G,H,I,J,K
21 Fusion D Bulb	700 - 550,570 - 900	B,C,D,F,G
22 Fusion H Bulb	350 - 470,530 - 610	A,B,C,D,G
23 Fusion V Bulb	400 - 450,550 - 600	D,G
24 General Electric Blacklight (black)	350 - 400	C
25 General Electric Blacklight (white)	350,400,405,545	C
26 General Electric Cool Light	400 - 700, > 850	F,G,H
27 General Electric Day Light	420 - 700	D,E,F,G,H
28 General Electric Germicidal	253	A
29 Glo-Lite Play Light	400 - 700	D,E,F,G,H,I
30 Laser Products 5200 Fluorescent	430 - 700, 800 - 900	F,G,H,I,J,K
31 Laser Products 5600 Fluorescent	450 - 700, 800 - 900	E,F,G,H,I,J,K
32 Laser Products 5600 Fluorescent	450 - 700, 800 - 900	E,F,G,H,I,J,K
33 Laser Light Bulbs, Inc. 1000	300 - 700, 800 - 900	A,B,C,D,E,G
34 Laser Light Bulbs, Inc. 1000	300 - 700, 800 - 900	A,B,C
35 Laser Light Bulbs, Inc. 1000	300 - 700, 800 - 900	B,C,D,G
36 Laser Light Bulbs, Inc. 1000	300 - 700, 800 - 900	B,C,D,E,F,G
37 Laser Light Bulbs, Inc. 1000	300 - 700, 800 - 900	B,C,D,E,H,K

Fig. 1

40044390.043302

[illegible]

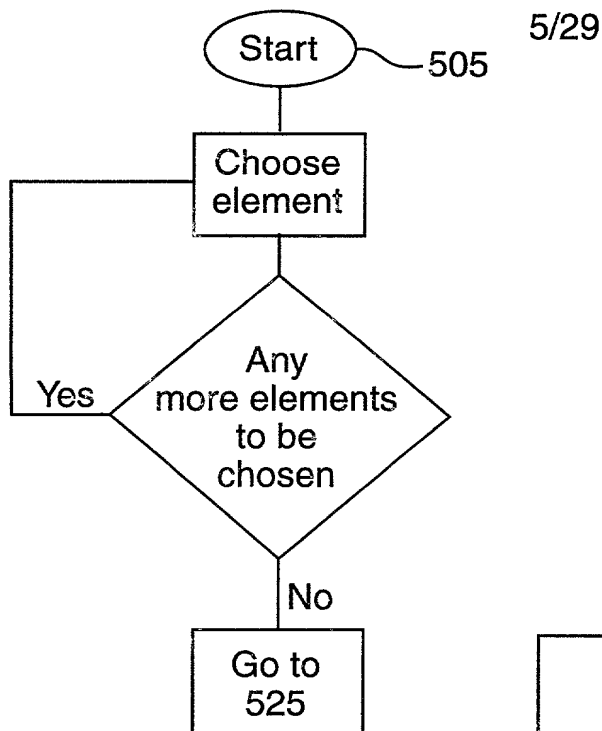
File 2A



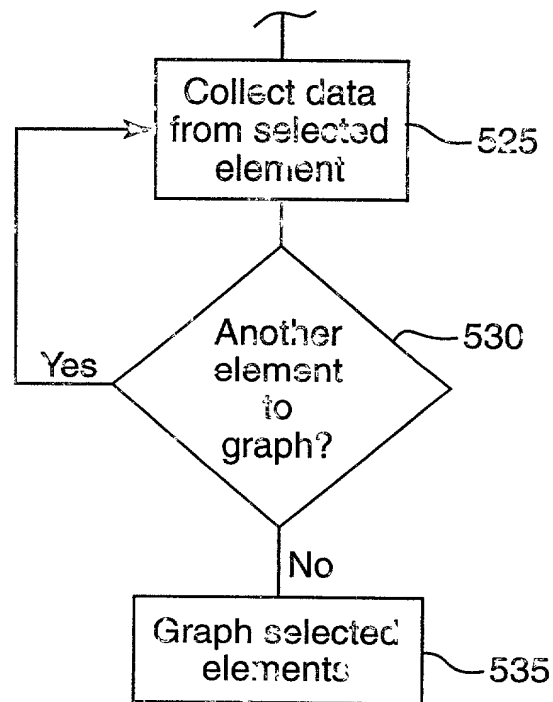
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Substrate Tested	Color of Substrate	Thickness	Transmission Wavelength (nm)	Wavelength Region
3M CM500 Multilayer Film			300 - 500, 520 - 1020	B,C,D,E,H,I,J,K
3M CM380 Multilayer Film			310 - 575, 700 - 1140	B,C,D,E,F,G,H,I,K
3M IR Film			310 - 910	B,C,D,E,F,G,H,I,J,K
3M Microflex 8025-1115 80-8104-6809-6	orange, Cu traces	2-2.8 mil	> 485	F,G,H,I,J,K
ABS (Sample 1)	cream, opaque	0.13	> 400	E,F,G,H,I,J,K
ABS (sample 2)	cream, opaque	0.122	> 400	F,G,H,I,J,K
Acrylic	colorless, clear	0.111	> 370	D,E,F,G,H,I,J,K
Al CD disk (40nm)	reflected mirror	40 nm	> 300	B,C,D,E,F,G,H,I,J,K
Al CD disk (45nm)	reflected mirror	45 nm	> 300	B,C,D,E,F,G,H,I,J,K
Al CD disk (50nm)	reflected mirror	50 nm	> 300	B,C,D,E,F,G,H,I,J,K
Al on BET	reflected mirror	3 mil	> 320	B,C,D,E,F,G,H,I,J,K
Alumina	opaque white	3.034	> 330	C,D,E,F,G,H,I,J,K
Astar Adhesive	colorless		> 350	D,E,F,G,H,I,J,K
BT Epoxy	opaque brown	0.063	> 520	G,H,I,J,K
Canvas	natural	32 mil	> 400	D,E,F,G,H,I,J,K
DSEF Film			> 380	C,D,E,F,G,H,I,J,K
Diamond Grade Sheeting	reflected mirror	22 mil	> 400	D,E,F,G,H,I,J,K
FR4 with green solder mask	green	3.062	> 400	E,F,I,J,K
GFRP precision punch	light yellowish-green, translucent	0.135	> 380	D,E,F,G,H,I,J,K
GFRP (FR4)	light yellowish-green, translucent	0.067	> 380	D,E,F,G,H,I,J,K
Glass slide	clear, colorless	0.222	> 310	C,D,E,F,G,H,I,J,K
Halar ethylene-chlorotrifluoroethylene ECTFE film	hazy colorless (off-white)	19 mil	230 - 275, > 280	A,B,C,D,E,F,G,H,I,J,K
HDPE	white	3.127	> 280	B,C,D,E,F,G,H,I,J,K
Kapton	orange, transparent	0.8 mil	> 435	E,F,G,H,I,J,K
Kynar polyvinylidene fluoride PVDF film	hazy colorless	16 mil	> 200	A,B,C,D,E,F,G,H,I,J,K
Mirror Multi-layer film	reflected mirror	2 mil	> 200	A,B,C,D,K
Multi-layer film	multi color	2 mil	> 200	B,C,D,E,H,I,J,K
One layer Security System card	opaque white	21 mil	> 400	D,E,F,G,H,I,J,K
PC	opaque white	15 mil	415 - 530, > 600	E,H,I,J,K
PC Hyzod FD-0200	colorless, clear	0.116	> 280	C,D,E,F,G,H,I,J,K
PC Lexan 9034	colorless, clear	0.119	> 390	D,E,F,G,H,I,J,K
PCB w/ green solder mask (spi 1)	green, no traces, board only	0.033	400 - 600, > 680	E,F,I,J,K
PCB w/ green solder mask (spi 2)	green	0.068	400 - 510, > 680	E,F,I,J,K
PCB w/ green solder mask (spi 3)	green	0.068	400 - 500, > 680	E,F,I,J,K
PCB w/ green solder mask (spi 4)	green, ground plane 17.0x17.0" across	0.088	400 - 500, > 680	E,F,G,I,J,K
PCB w/ green solder mask (spi 5)	green (yellowish tone)	0.033	450	E,F,G,I,J,K
PCB w/ green solder mask (spi 6)	green (bluish tone)	0.068	400 - 500, > 670	E,F,I,J,K
PETG	opaque white	22 mil	> 400	D,E,F,G,H,I,J,K
Polyimide	opaque dark brown	1.171	520	G,H,I,J,K
Polycarbonate	translucent white	0.123	> 280	C,D,E,F,G,H,I,J,K
Teflon	opaque white	0.151	> 200	A,B,C,D,E,F,G,H,I,J,K
TPX polymethylpentene PMP film	hazy colorless	11 mil	310 - 370	A,B,C,D,E,F,G,H,I,J,K
One layer Security System Card	opaque white	13 mil	> 120	D,E,F,G,H,I,J,K
Ultra polyethylene Thermaflex film	hazy, translucent (off-white)	10 mil	310	D,E,F,G,H,I,J,K
UHMWPE	semi-transparent white	0.14	> 260	C,D,E,F,G,H,I,J,K
Ultem 1000 polyetherimide sample 1	amber transparent	0.13	> 415	E,F,G,H,I,J,K
Ultem 1000 polyetherimide sample 2	amber transparent	0.122	430	E,F,G,H,I,J,K
Ultem 1000 polyimide film	amber transparent	0.11	400	D,E,F,G,H,I,J,K
Ultem 1000 polyimide film by General Electric	amber transparent	0.11	400	E,F,G,H,I,J,K
Ultem 1000 polyetherimide PES film	amber transparent	0.11	> 300	C,D,E,F,G,H,I,J,K
UMPS	orange, transparent	3 mil	310 - 400, > 410	F,G,H,I,J,K
Victrex PEEK Film polyetheretherketone	amber, hazy transparent	10 mil	> 390	D,E,F,G,H,I,J,K
Vinyl card	opaque white	30 mil	> 410	D,E,F,G,H,I,J,K
Vinyl film	clear	7.5 mil	> 380	D,E,F,G,H,I,J,K

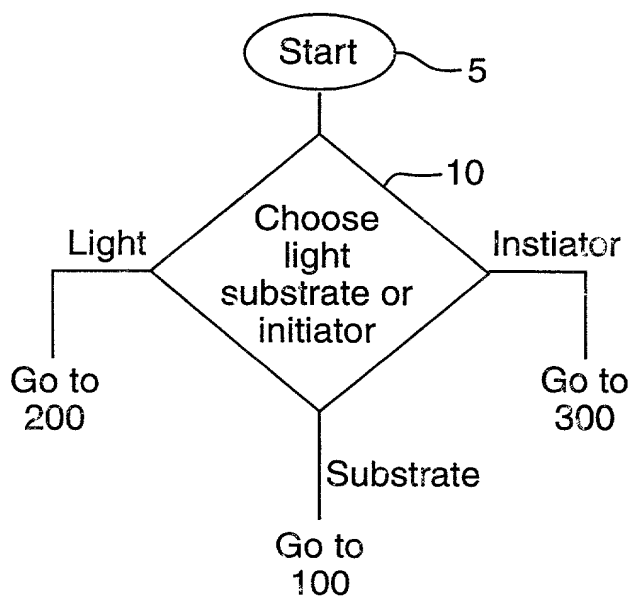
Fig. 3



**Fig. 4A**

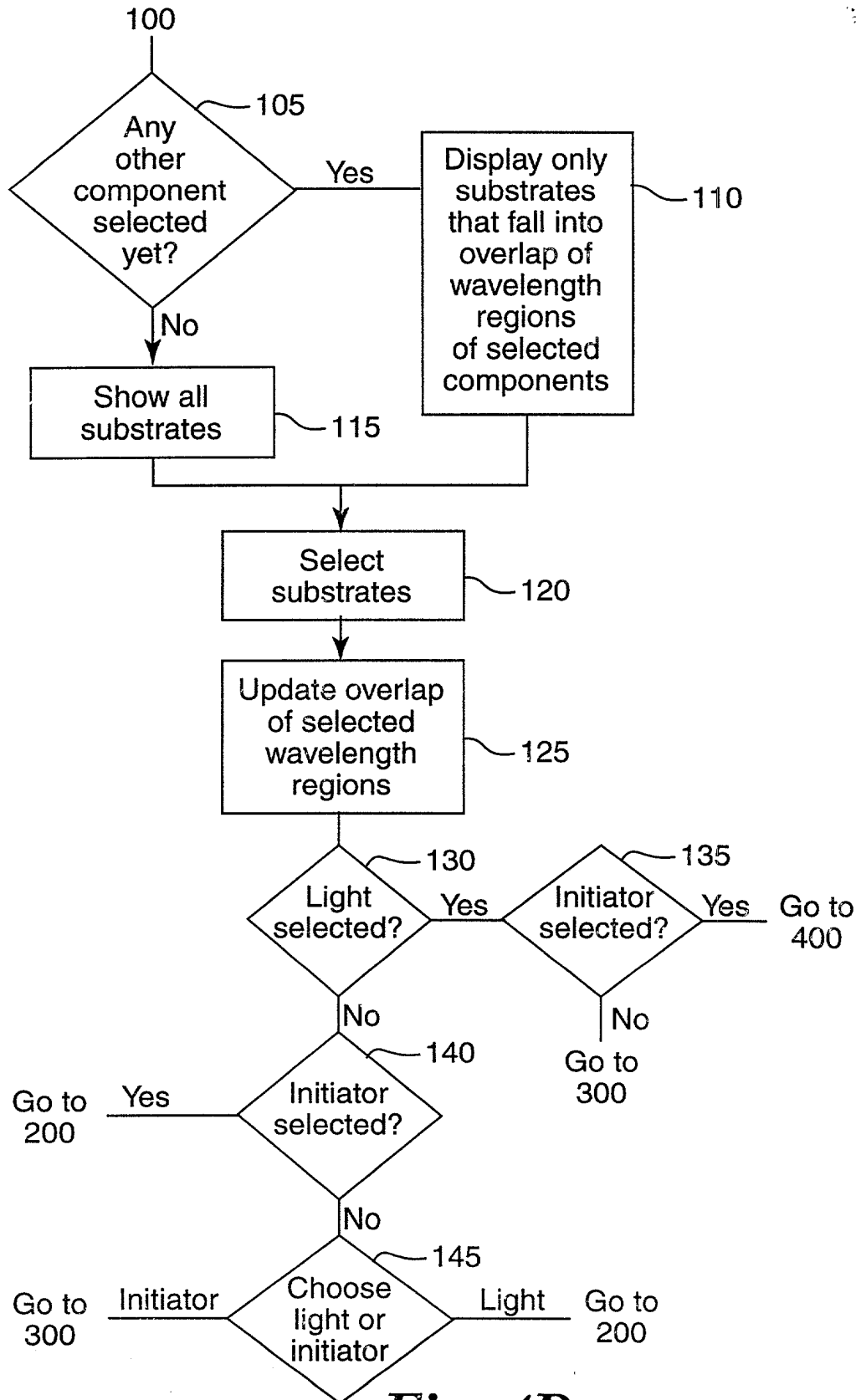


**Fig. 4B**



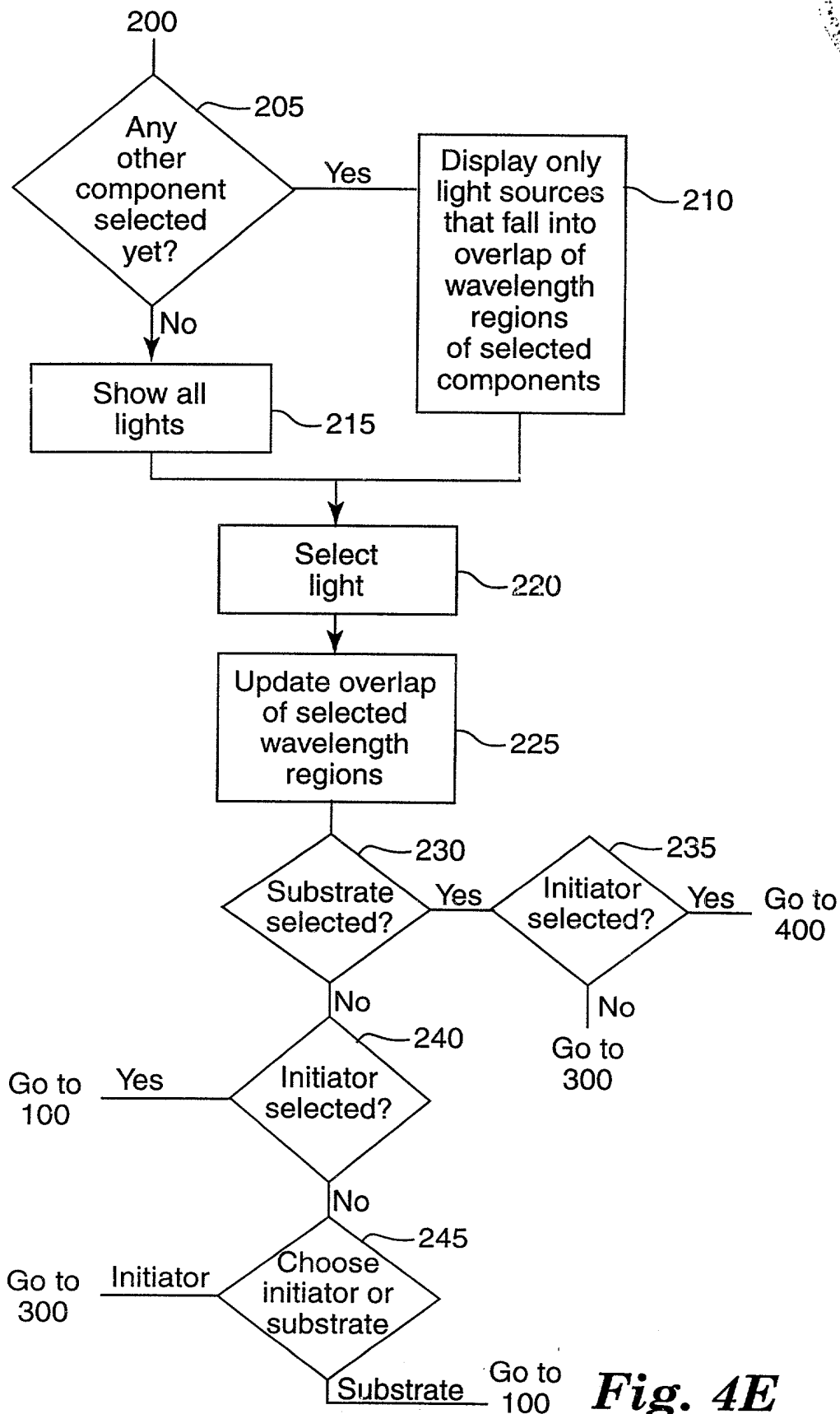
**Fig. 4C**

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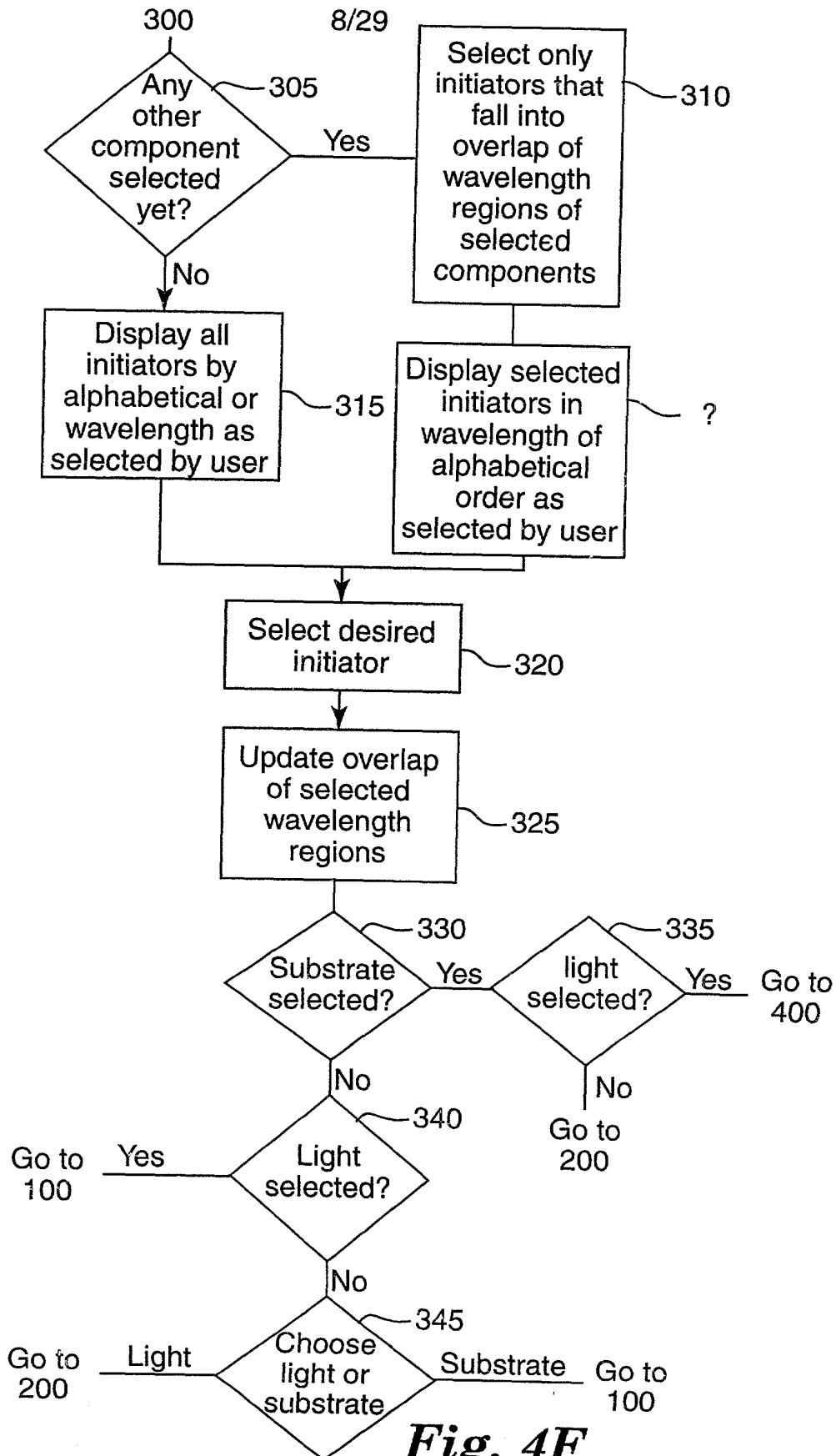


**Fig. 4D**

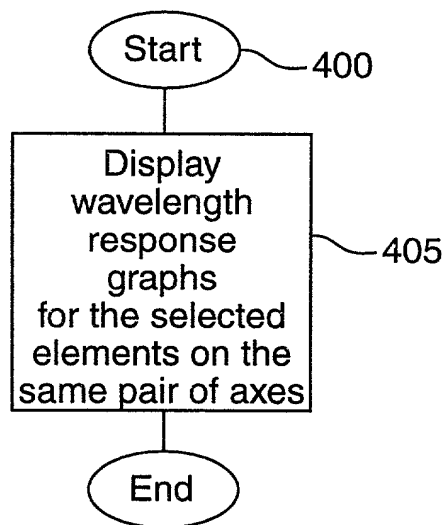
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**Fig. 4E**



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***Fig. 4G***

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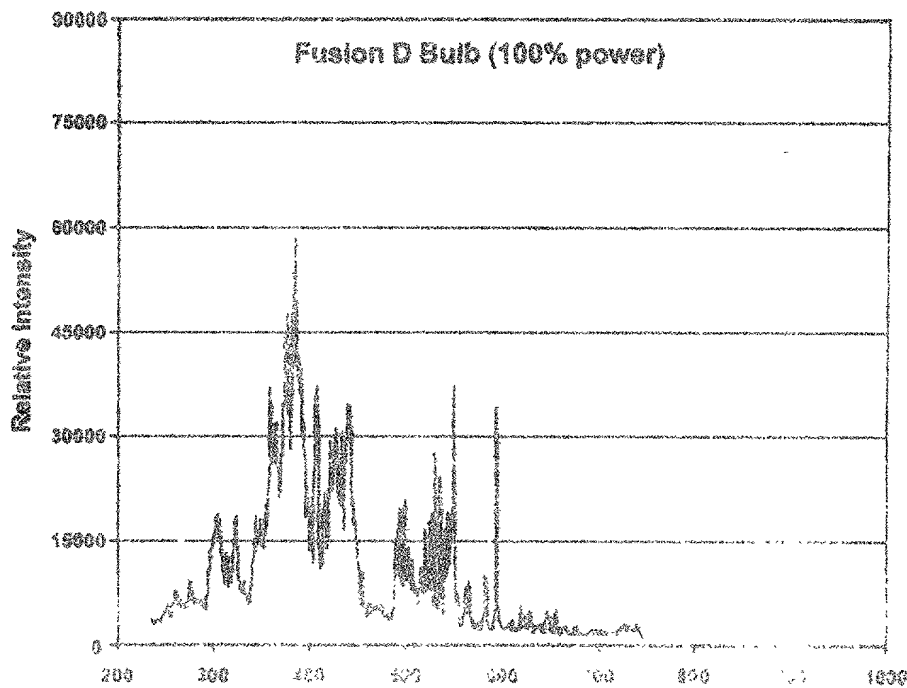
### Light Source Profile

Light Sources: Fusion D Bulb  
Emiss. 300 - 450, 500 - 600 Picture of Light Source  
Wavelength (nm)  
Wavelength B, C, D, F, G  
Region:  
Intensity  
Notes:



Fusion D 100.xde

Emiss Spectrum:



Emiss Data (Enter data from frequencies 200 - 1800 only. Enter data separated by a comma and one space (i.e. 12.3, 32.1):

4371, 3681, 4423, 4041, 4025, 4369, 4010, 4228, 3519, 4111, 3627, 4240, 3962, 3797, 3989,
4447, 3831, 3689, 3860, 3839, 4266, 3601, 3945, 4401, 3722, 3731, 3936, 4012, 3906, 3899,
4133, 4359, 4452, 3584, 4151, 3963, 3768, 3692, 3927, 4447, 3789, 3826, 4215, 3946, 3853,
4117, 4293, 3444, 3797, 3609, 3710, 4253, 3981, 4295, 3881, 3474, 3679, 3791, 3919, 3888,
4435, 3511, 4433, 3637, 4161, 3553, 4280, 3803, 3390, 3769, 4976, 4095, 3157, 3210, 3202,
3285, 3130, 3130, 2926, 3018, 3082, 3106, 3263, 3302, 3106, 3109, 3042, 3115, 3082, 3266,
3263, 3530, 3749, 4239, 4413, 4841, 4757, 4922, 4423, 4687, 4975, 5086, 5045, 5378, 5474,
5935, 5550, 5610, 4718, 4176, 3736, 3906, 3883, 4203, 4462, 3636, 4721, 7066, 7135, 7701,
7402, 7829, 7338, 7530, 6794, 6345, 4405, 6034, 6042, 6018, 5750, 5529, 5930, 5807, 5502,
5727, 5451, 5482, 5247, 5370, 5403, 5367, 5386, 5781, 5657, 5110, 5510, 7090, 7391, 8362,
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13370, 12474, 13928, 13594, 14824, 14734, 16098, 15146, 16235, 15923, 18144, 17212, 17789,

Fig. 5A

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Fig. 5B

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1727, 1698, 1672, 1725, 1754, 1834, 1863, 1994, 2074, 1930, 1717, 1666, 1674, 1885, 2082,  
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2209, 2042, 1985, 1884, 1818, 1738, 1661, 618

Maximum Frequency (Enter 1000 or smaller if the frequency range is less than 1000):  
748

*Fig. 5C*

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## Select a Substrate, Light Source, and/or Photo Initiator Type



Select Component Type

Select Component

View Results

This process allows you to select up to three components to view together. For each component, you must first select a component type. There are three types of components to select from (Substrate, Photo Initiator, or Light Source). After selecting the desired component type, you can then select a component of that type.

- Select the first component type from the drop-down list below and click the Next > button.

Select the first component type:

Substrate



*Fig. 6A*

## Select a Substrate, Light Source, and/or Photo Initiator



Select Component Type

Select Component

View Results

- If you want to view more components, select a component of the selected type from the drop-down list below and click the Next > button.

- If you want to view the selected component(s), select a component of the selected type from the drop-down list below and click the Finish button.

- If you want to select a different component type, click the < Back button.

Select a Substrate:


Substrate

< Back | Next > | View Overlay

*Fig. 6B*

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## Select a Substrate, Light Source, and/or Photo Initiator Type



**Select Component Type**

**Select Component**

**View Results**

- Select the next component type from the drop-down list below and click the Next > button.
- If you want to select a different component, click the < Back button.

Select the second component type:


Component Type #1: Substrate

Component #2: Light Source

Back
Next >

*Fig. 6C*

## Select a Substrate, Light Source, and/or Photo Initiator



**Select Component Type**

**Select Component**

**View Results**

- If you want to select a different component of the selected type from the drop-down list below and click the Next > button.
- If you want to view the status of the selected type, select a component of the selected type from the drop-down list below and click the Finish button.
- If you want to select a different component type, click the < Back button.

Select : Photo Initiator:

Component Type #1: Substrate

Component #2: Light Source

Back
Next >
View Overlay

*Fig. 6D*

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## Select a Substrate, Light Source, and/or Photo Initiator Type

**Select Component Type**

**Select Component**

**View Results**

- Select the next component type from the drop-down list below and click the Next > button.
- If you want to select a different component, click the < Back button.

Select the third component type:

Component Type #1:	Substrate
Component #1:	UV Light
Component Type #2:	Photo Initiator
Component #2:	Dispersed Photo

< Back
Next >

**Fig. 6E**

## Select a Substrate, Light Source, and/or Photo Initiator

**Select Component Type**

**Select Component**

**View Results**

- If you want to view more components, select a component of the selected type from the drop-down list and click the Next > button.
- If you want to view the current component, select a component of the selected type from the drop-down list and click the Finish button.
- If you want to select a different component type, click the < Back button.

Select a Light Source:

Component Type #1:	Substrate
Component #1:	UV Light
Component Type #2:	Photo Initiator
Component #2:	Dispersed Photo

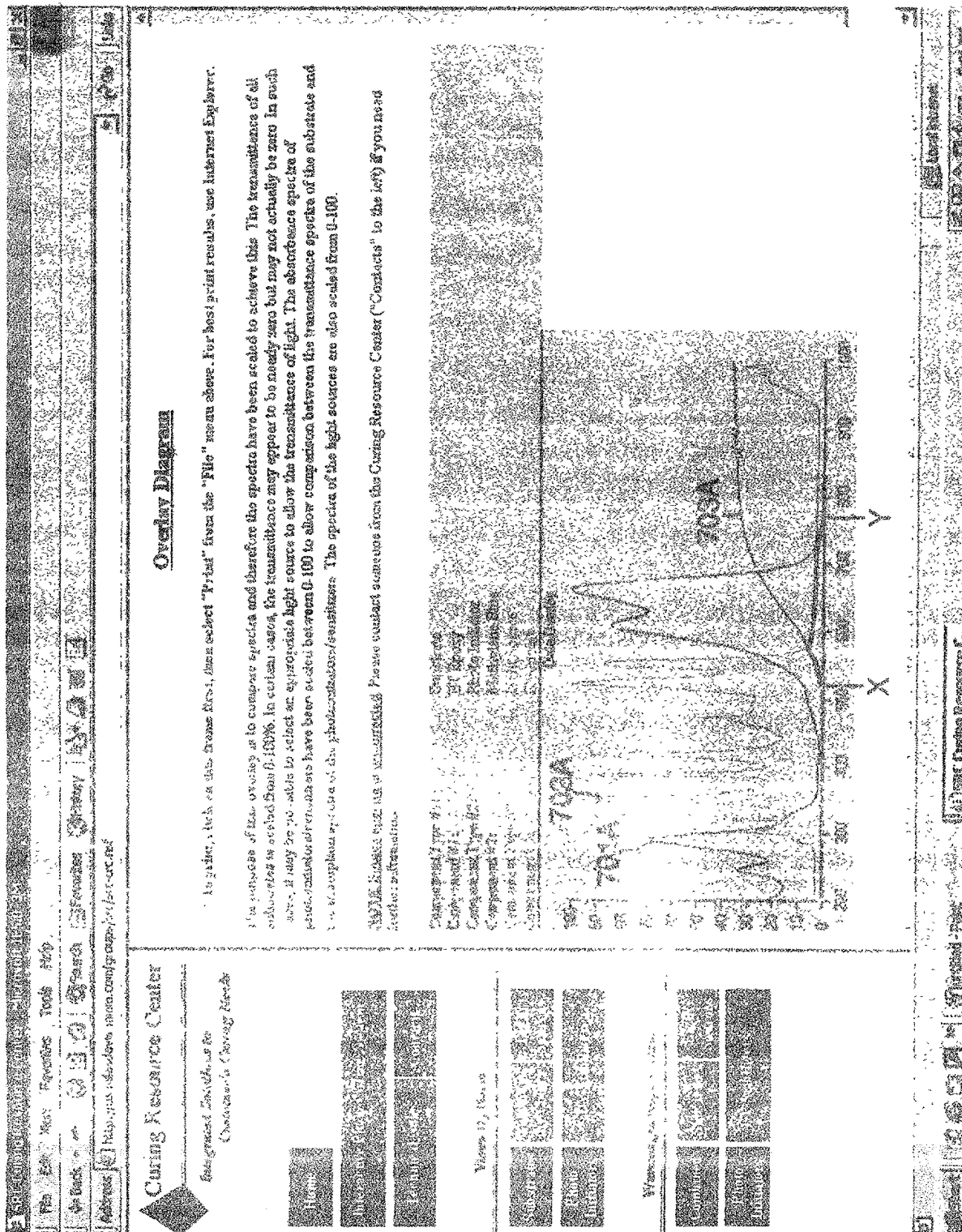
< Back
View Overlay

**Fig. 6F**



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Fig. 7A





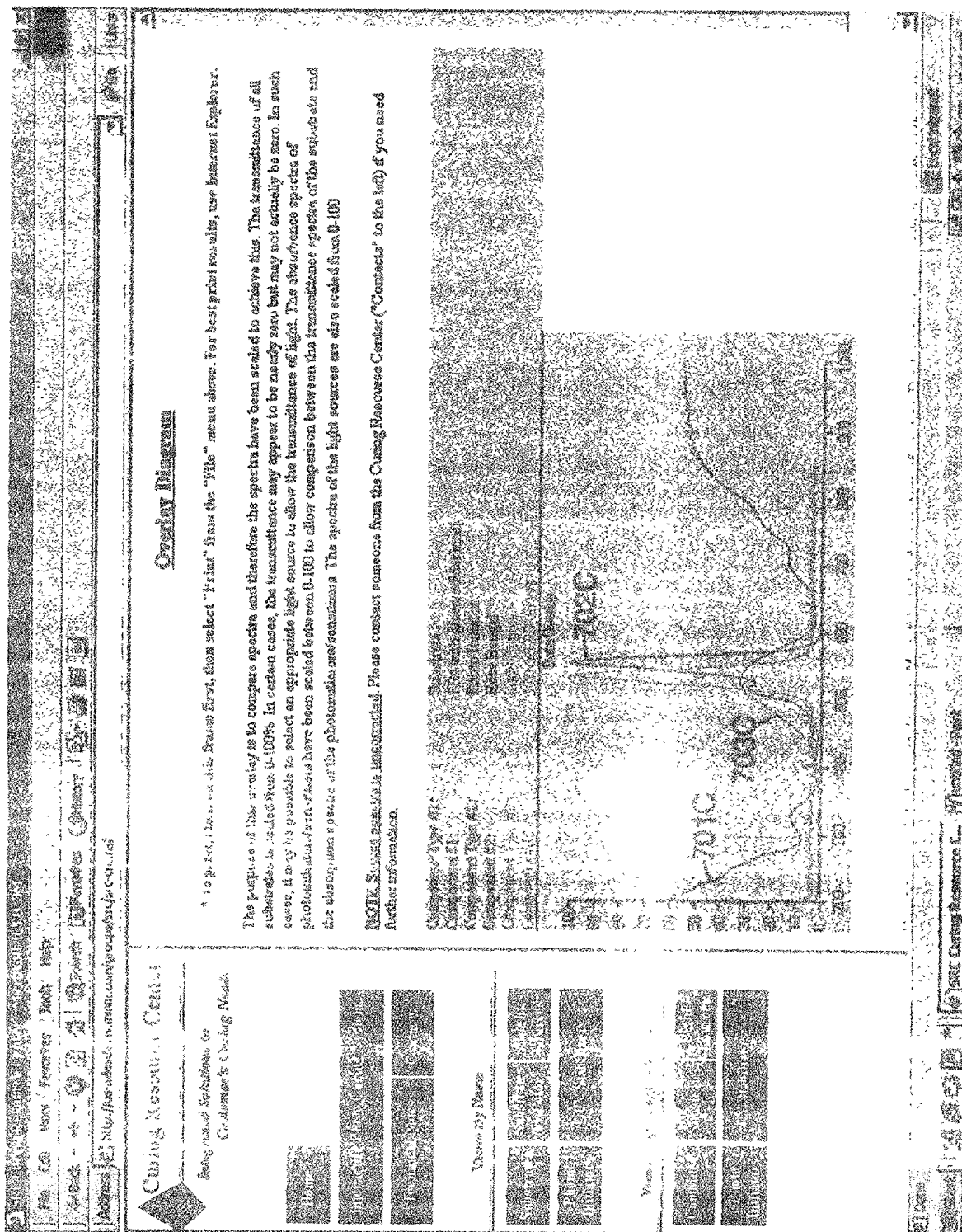
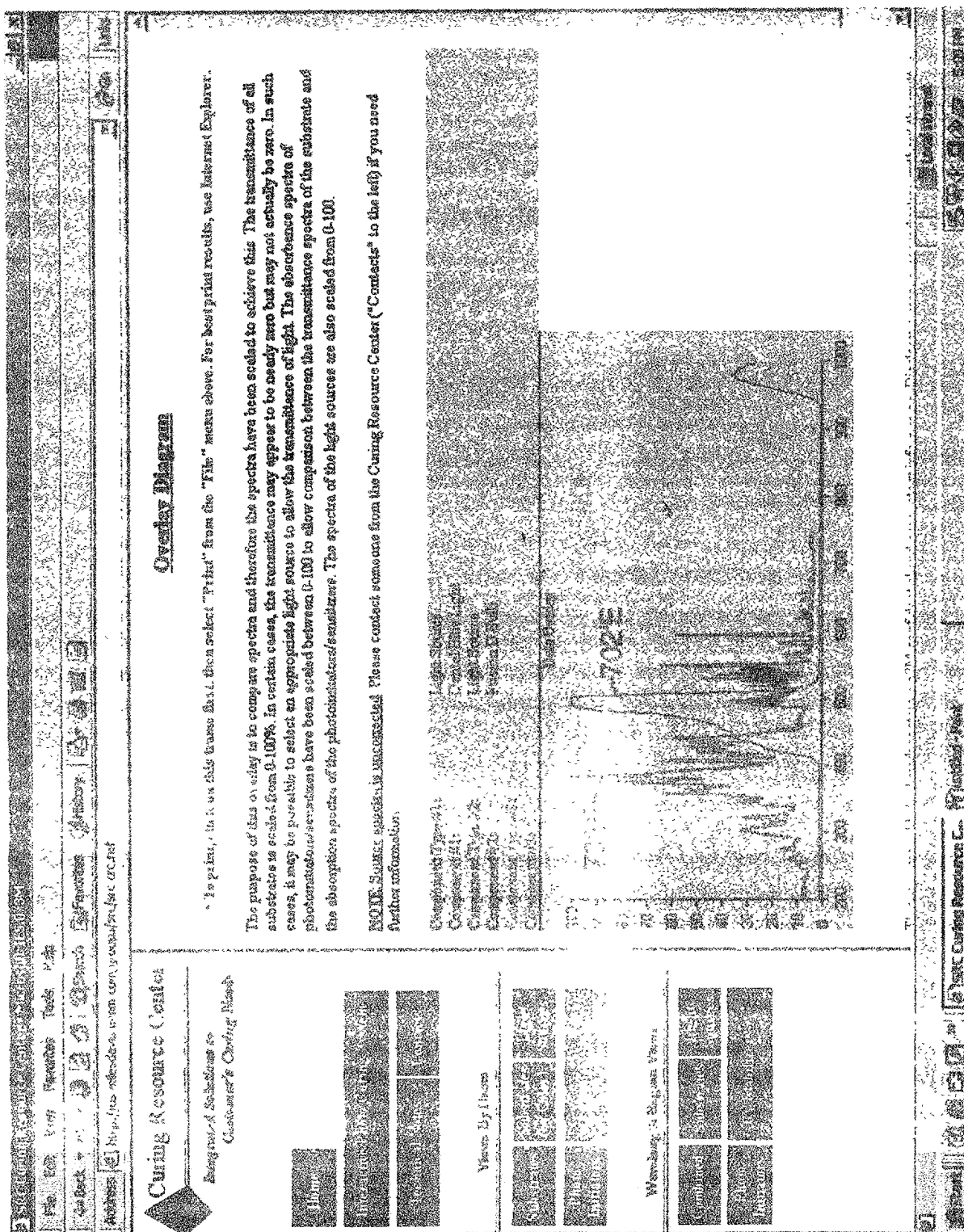
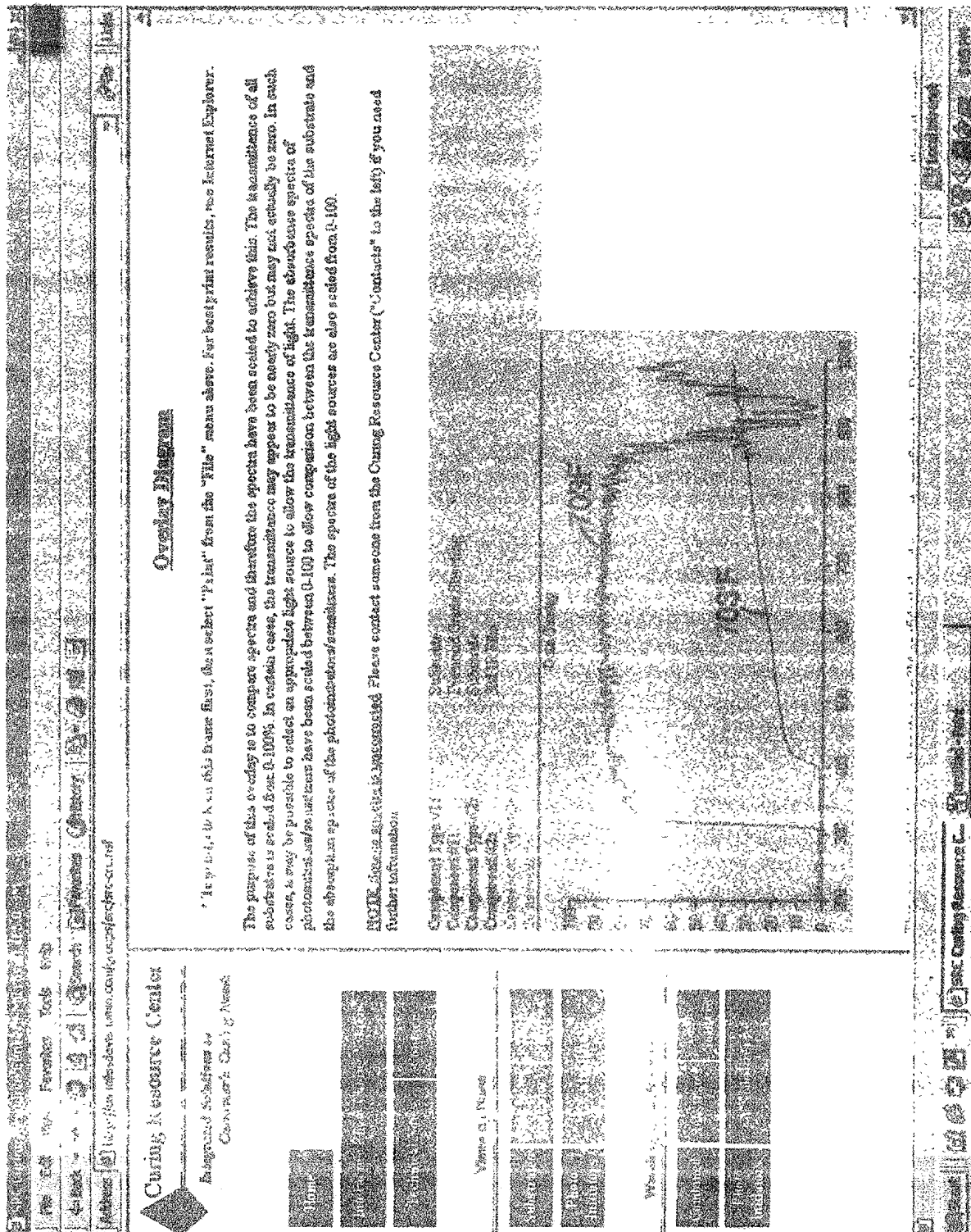


Fig. 7



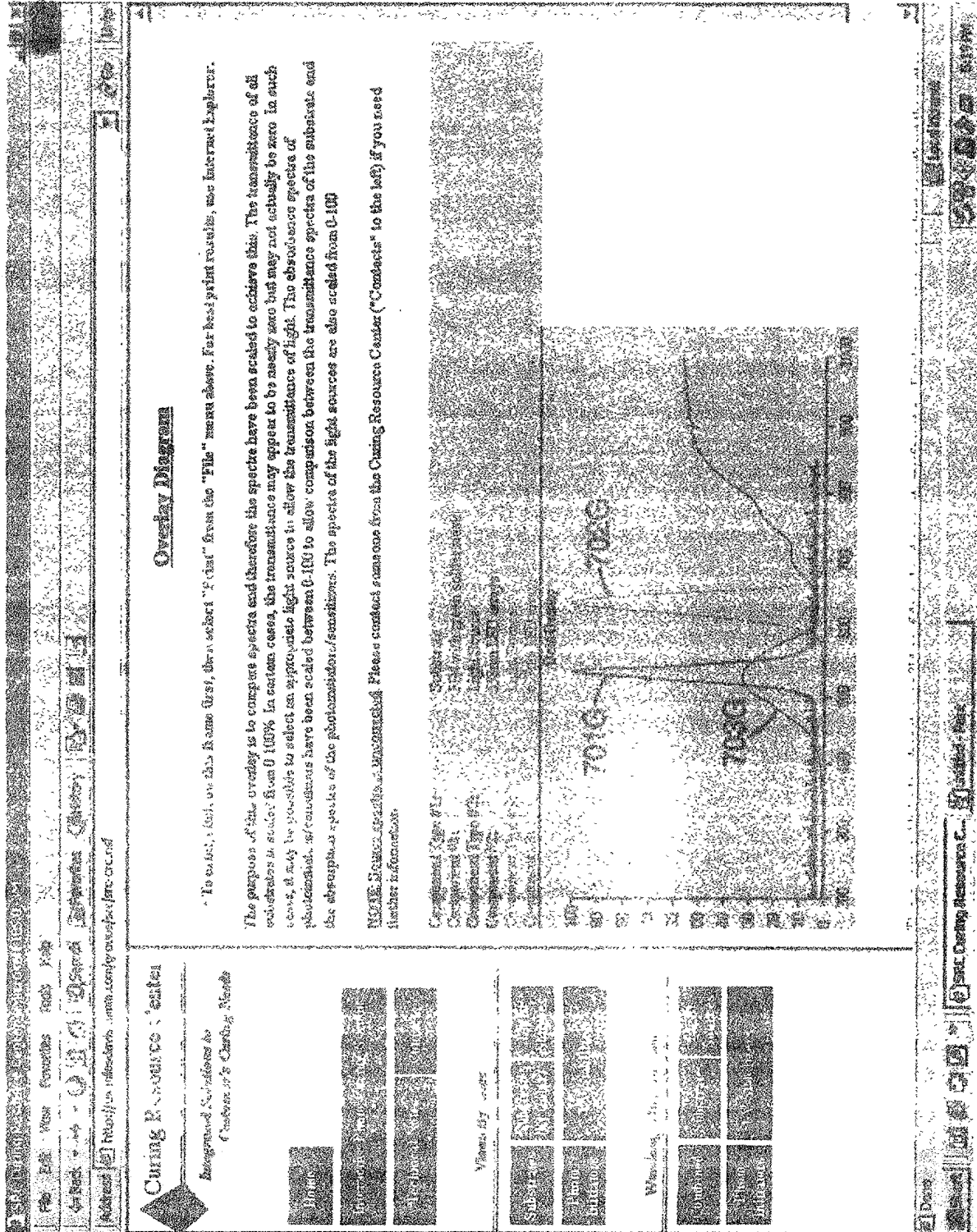
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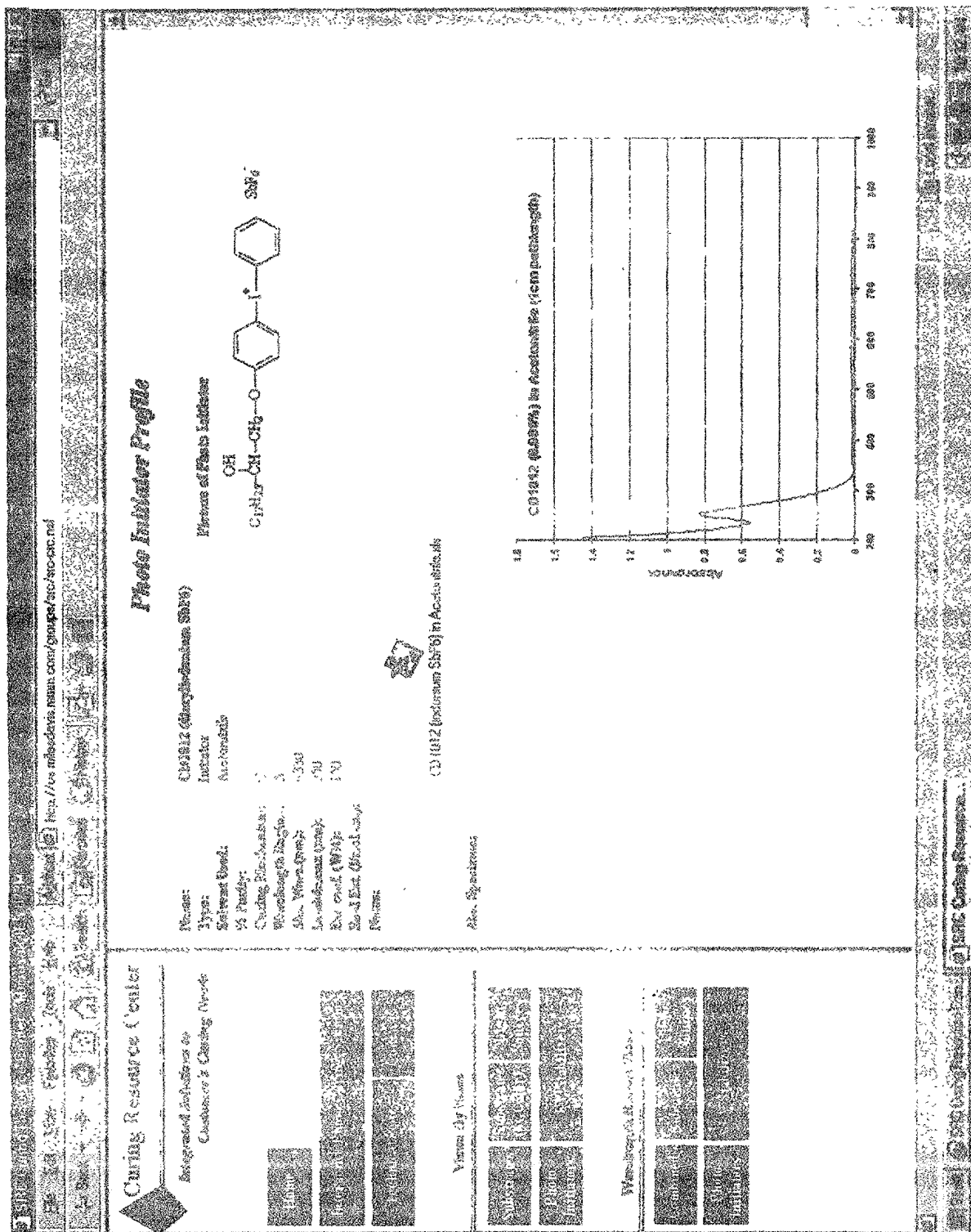
Fig. 7F

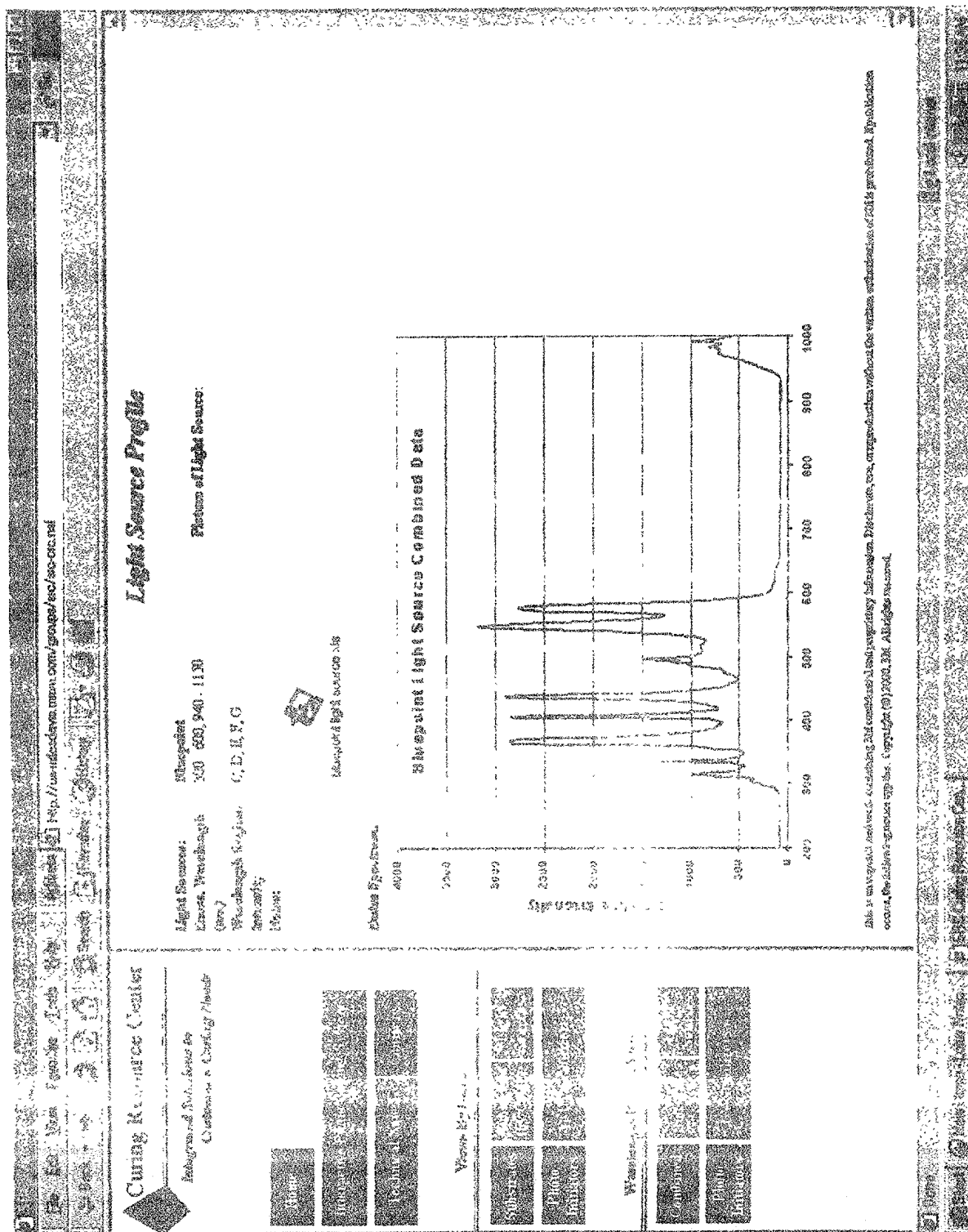


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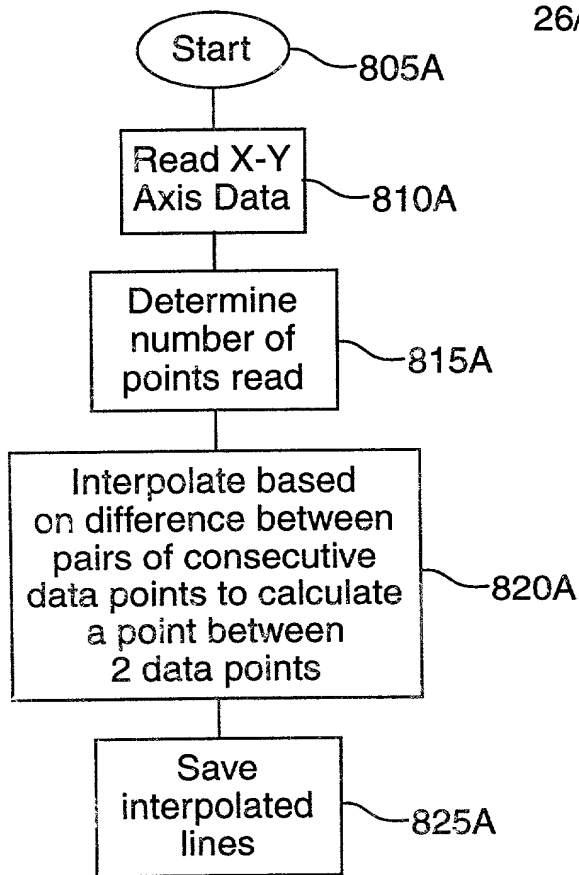
Fig. 7G



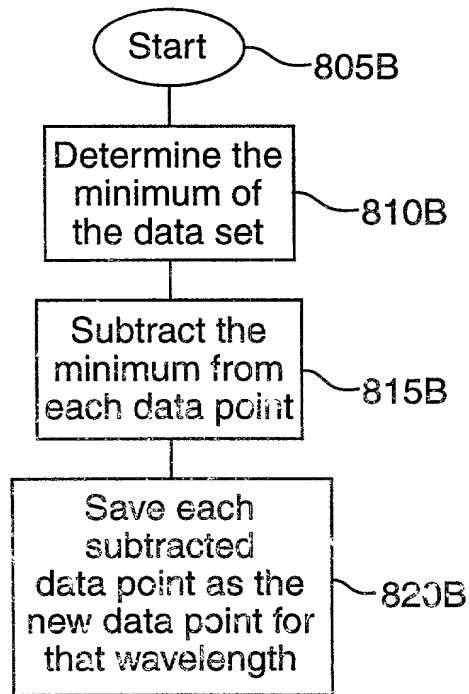




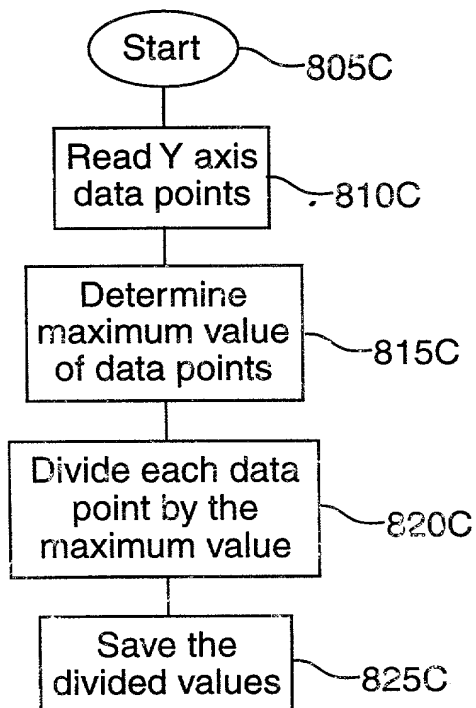
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**Fig. 8A**

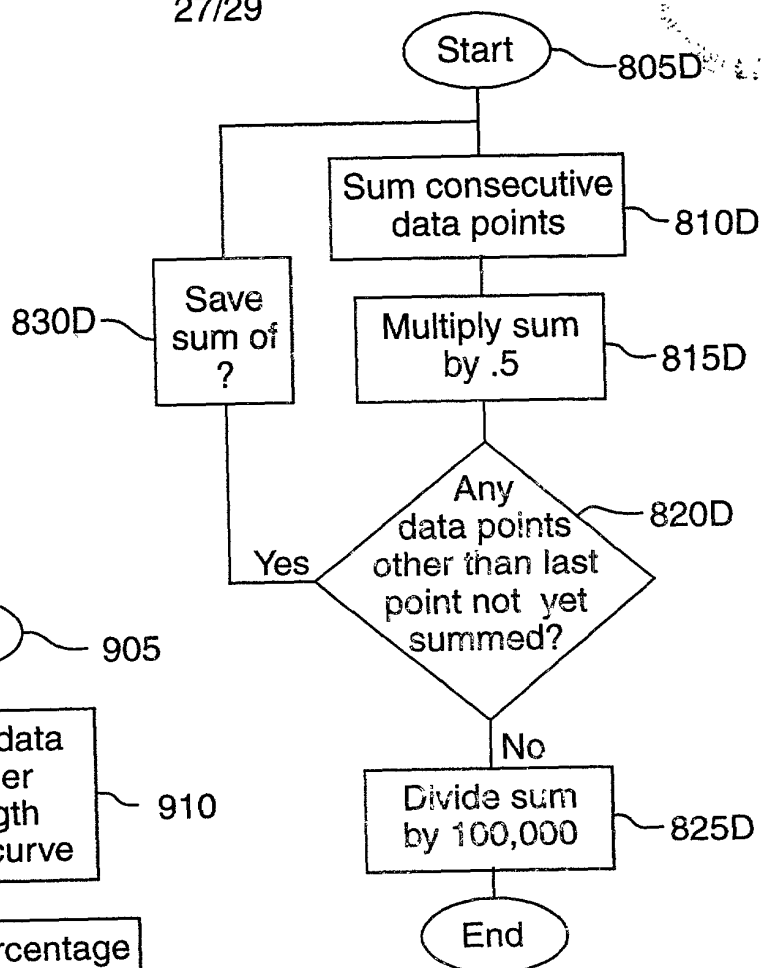


**Fig. 8B**

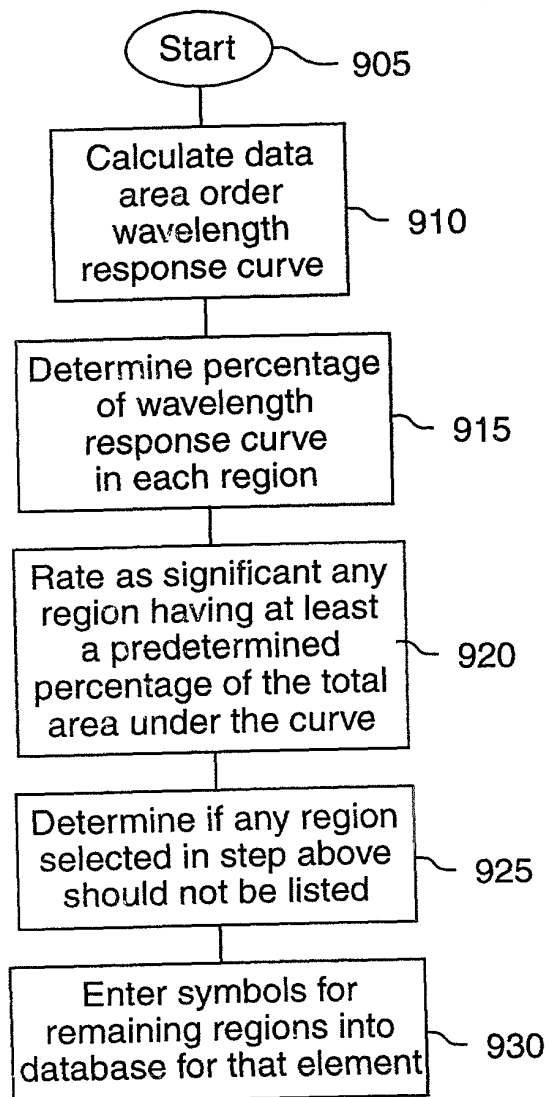


**Fig. 8C**

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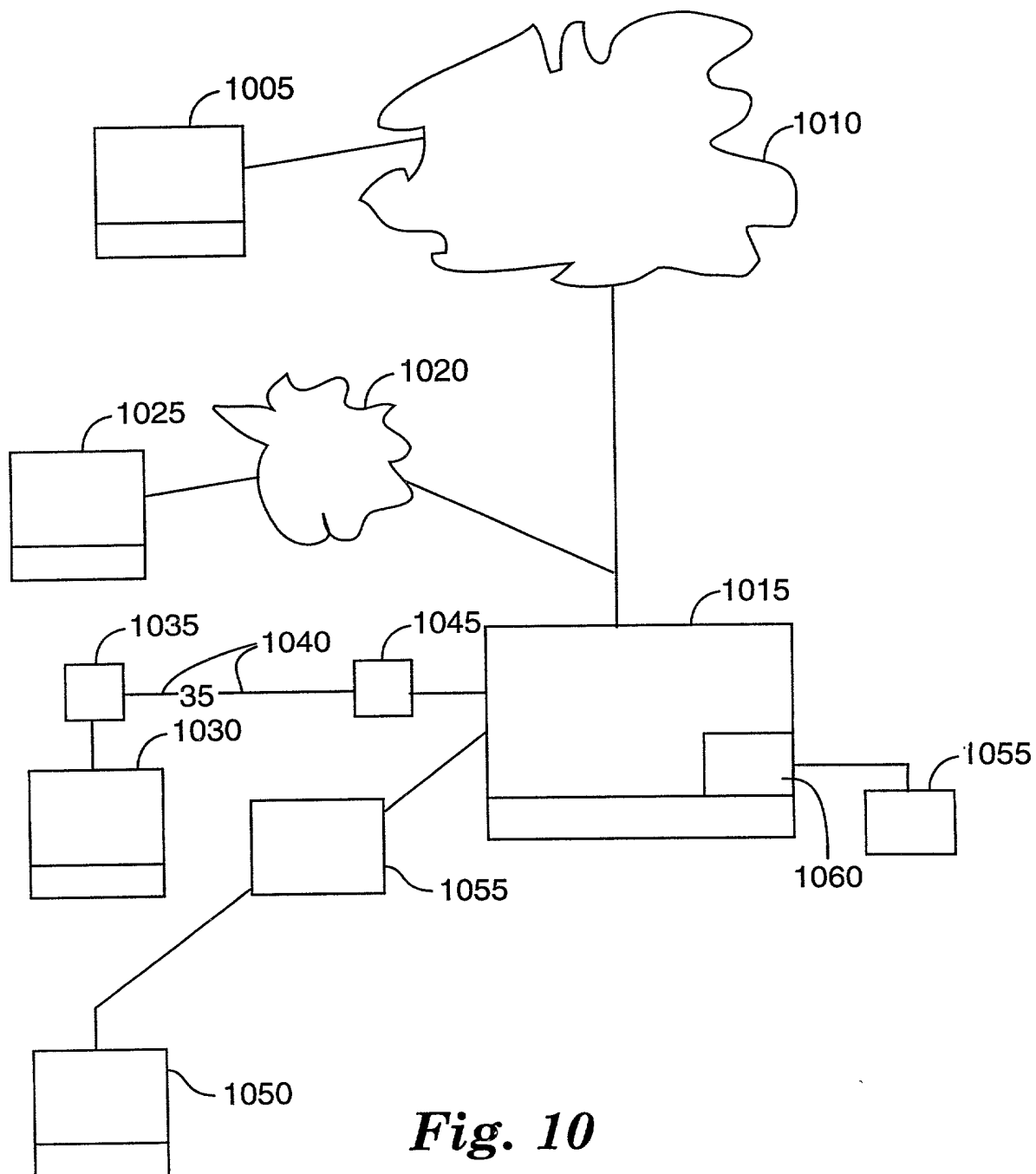


**Fig. 8D**



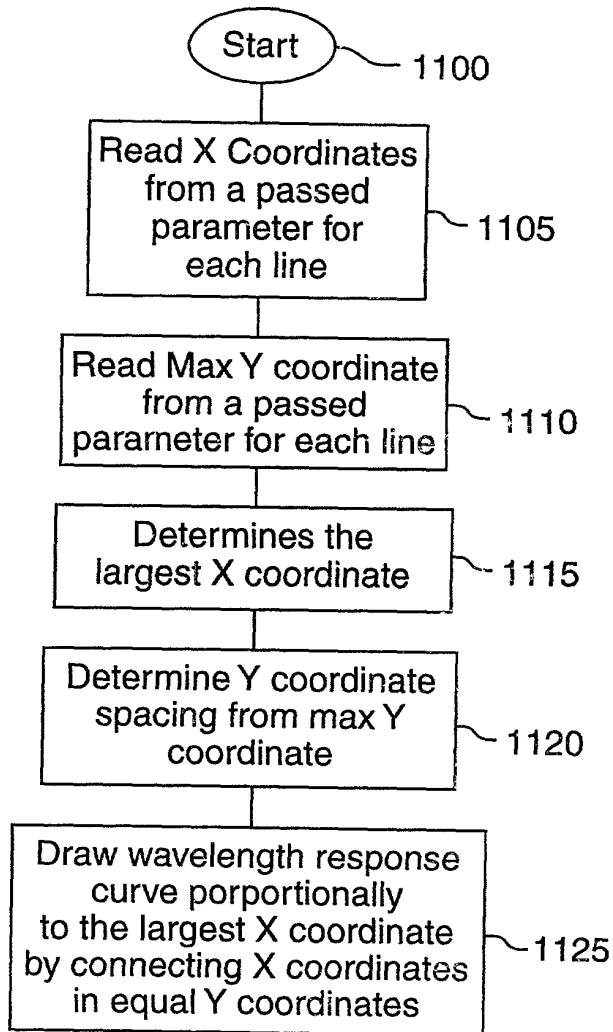
**Fig. 9**

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**Fig. 10**

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**Fig. 11**